S&P Global
Ratings

Global Debt Leverage

# If Stagflation Strikes, Loss-Making Corporates Will Double Globally

## A Stress Test Of 20,000 Unrated Corporates

**July 12, 2022**

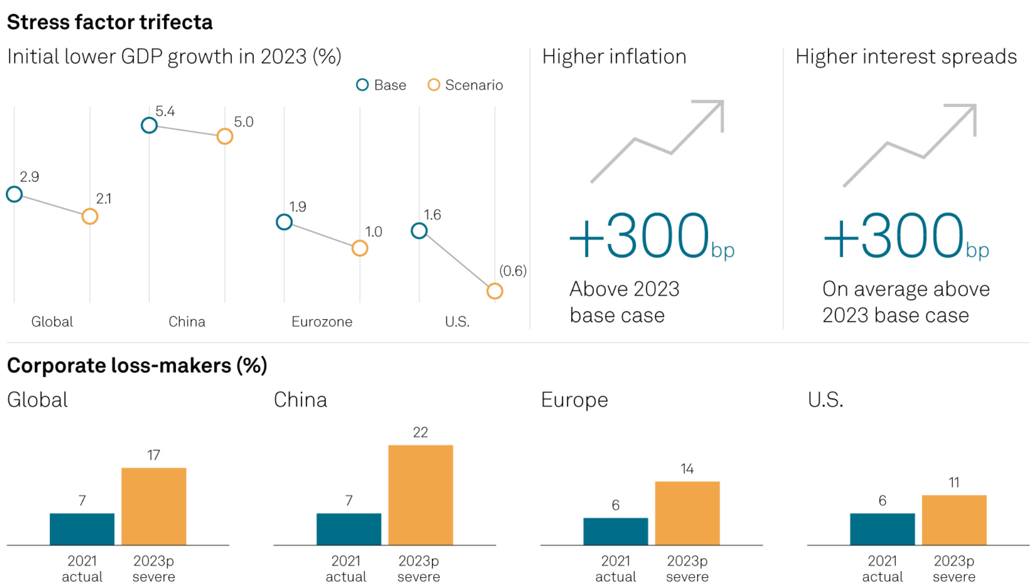
*This report does not constitute a rating action*

### Key Takeaways

- **Stagflation scenario.** Lower global growth, inflation spikes and higher interest spreads could see corporate loss-makers (potential defaulters) rise 2.4x to 17% by 2023.
- **China fares worst.** Its loss-makers triple to 22% under our severe scenario. Accounting for a third of global corporate debt, China's corporates pose a contagion risk.
- **Struggling sectors hit.** Consumer discretionary, industrials and real estate have not fully recovered from the COVID crisis. Under stress, their loss-makers rise by over half.

*(This report is part one of three in the Global Debt Leverage July 2022 series)*

### Corporate Loss-Makers Rise By 2x-3x Under Our Stagflation Stress Test




Scenario assumptions and corporate loss-maker outcomes shown in the above infographic relate to the severe scenario. p--Projection.
Source: S&P Global Ratings.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# Overview

**The four 'I's of infection, invasion, inflation and interest rates.** The inflation situation is worsening, compounded by Russia's invasion of Ukraine and China's somewhat-contrarian lockdown approach to controlling COVID infections (see "*Global Credit Conditions: Resurfacing Credit Headwinds*," published June 30, 2022). The Federal Reserve has significantly raised its Funds Rate and is beginning to taper its asset holdings (quantitative tightening). Other central banks have preceded or are following the Fed in raising policy interest rates. Meanwhile, investors are asking for higher interest spreads. Overall, conditions are tougher compared with our December 2021 semi-annual Global Debt Leverage series.

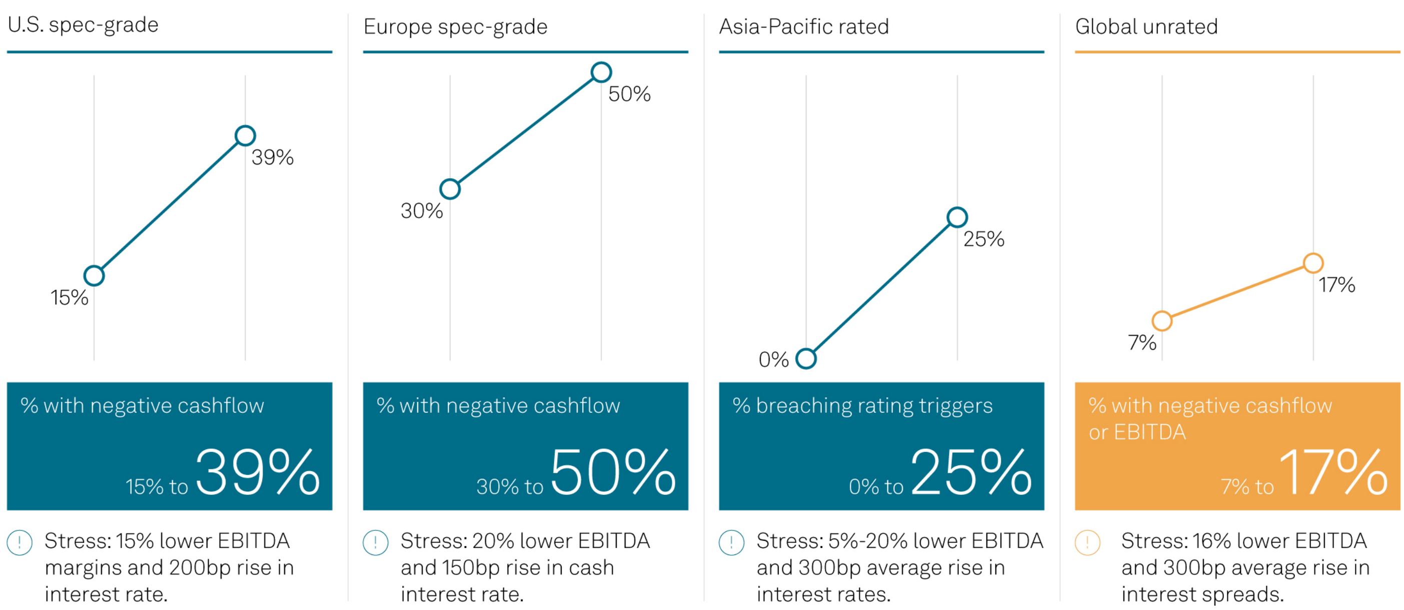
The Fed's more aggressive tightening stance underlines the fast-moving inflation risk.

**Stress tests on our rated corporates pointed to cash-flow stress.** Our analytical teams have recently stress tested our rated nonfinancial corporate portfolios for higher interest rates and inflation. The portfolios tested were U.S. speculative-grade corporates (see "*Searching For Stress Fractures: Evaluating The Impact Of Interest Rate And EBITDA Stresses On U.S. Speculative-Grade Corporates*," May 25, 2022), European speculative-grade corporates (see "*Recession Risk And Ratings: What Recession Could Mean For European Speculative Grade Nonfinancial Corporates*," June 23, 2022), and Asia-Pacific corporates (see "*APAC Corporates: Inflation, Rate Strains Set In*," June 21, 2022).

We applied slightly different stress tests to each region (see chart 1-1). In the U.S., the share of speculative-grade issuers with free operating cash flow (FOCF) deficits would increase to 39% from 15%. In Europe, 50% of speculative-grade issuers in 2023 would have negative FOCF compared to 30% in 2021. In the Asia-Pacific test, 25% of issuers would breach rating triggers. (FOCF is cash from operations less capital expenditures).

Chart 1-1

Recessionary Stress Tests Show Big Jumps In Negative-Cashflow Corporates




Cashflow--for rated pool refers to free operating cash flow (FOCF); for unrated pool to funds from operations (FFO).
Bp--basis point. Spec-grade--speculative-grade. Source: S&P Global Ratings.

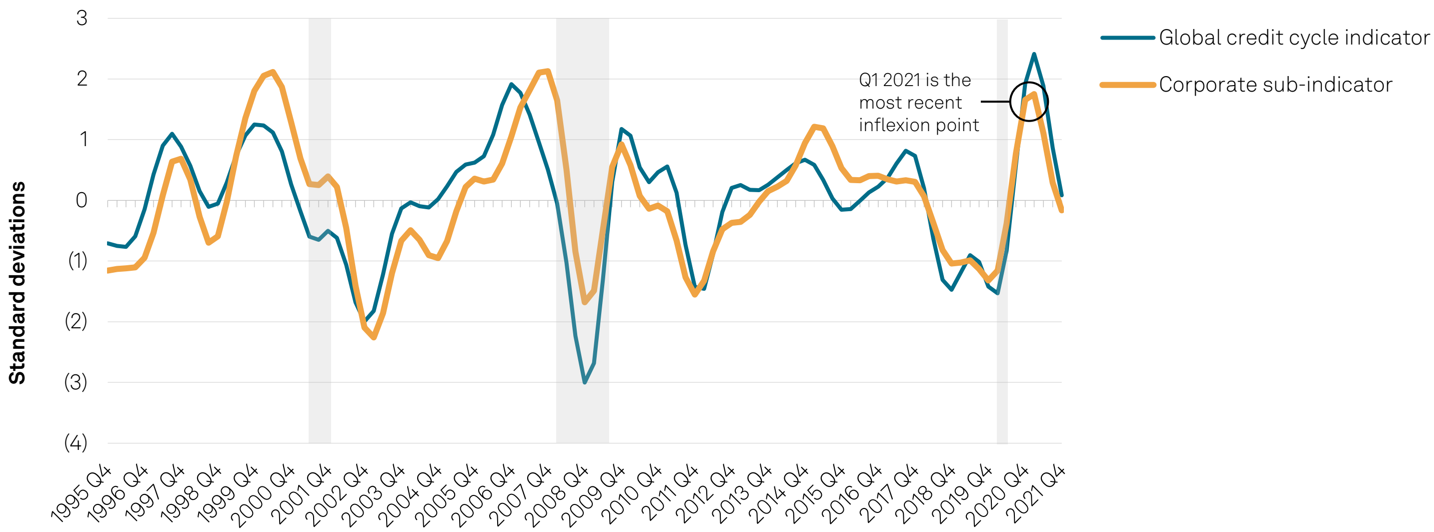
**This report primarily focuses on our stress tests to a wider, mostly unrated universe.** To get a broad overview of how global unrated corporates are faring, we also conducted a stress test on such corporates. Our sample comprised 20,000 corporates (93% unrated) with debt totaling $37 trillion--representing **41% of total global corporate debt**. Each corporate was categorized into four risk tiers: low, moderately low, moderately high, and high; with loss-makers a sub-set of the high category. This report is one of three presenting the outcome from this larger filter.

**Our credit cycle indicator points to potential stress.** Our trial Credit Cycle Indicator (CCI; see "*White Paper: Introducing Our Credit Cycle Indicator*," June 27, 2022) at the global level, along with its corporate sub-indicator, most recently peaked in first quarter 2021 (see chart 1-2). Based on the premise that the peaks in the CCI tend to precede negative credit developments by six to 10 quarters, late 2022 to late 2023 may be a time of credit stress. We have accordingly set our stress test in and around 2023.

Chart 1-2

## Global CCI's Q1 2021 Peak Warns Of Potential Stress In Late 2022 To 2023

Global CCI and its corporate sub-indicator

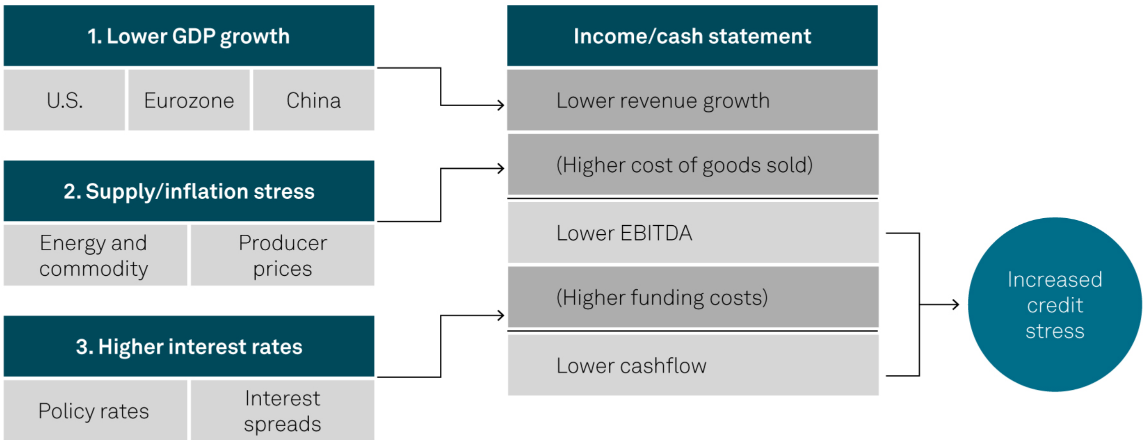



Shaded areas indicate periods of U.S. economic contraction (National Bureau of Economic Research).
Source: S&P Global Ratings.

**Stagflation more of a threat than in our last such exercise.** The stagflation stress comprised slower GDP growth in the U.S., eurozone and China, higher energy, commodity and producer-price inflation, and higher interest spreads (see chart 1-3). This report follows our exercises of December 2021 (see "*Global Debt Leverage: How A 300bp Rise In Inflation And Interest Rates Could Hit Borrowers*," Dec. 7, 2021) and June 2021 (see "*Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making*," June 22, 2021).

Chart 1-3

## Lower GDP Growth, High Inflation, Higher Spreads Hit Earnings And Cashflow




EBITDA--earnings before interest, tax and depreciation and amortization expenses. Cashflow is funds from operations (FFO), which is calculated by deducting net interest expense and tax expense from EBITDA. Source: S&P Global Ratings.

**Downside GDP scenario includes a U.S. recession.** Fed Chairman Jerome Powell acknowledged on June 22, 2022, that "[recession] is certainly a possibility." With that we initiate our stress scenario by assuming the downside scenario as described in "*Global Credit Conditions: Resurfacing Credit Headwinds*," June 30, 2022. This downside involves economic activity in the U.S. slowing sharply in second half 2022 and contracting to produce a recession in 2023; eurozone GDP growth slowing down to 1% in 2023, the U.K. experiencing a growth recession in 2023 with growth slipping to 0.6%; and China's GDP about 0.4 percentage points lower in 2023 compared with the baseline. These assumptions are linked to S&P Global Ratings' June 2022 macroeconomic forecasts using the Global Link Model (GLM) to produce a reasonable set of consistent downside projections for the U.S., eurozone, and China over the period 2022-2024. We apply the same downside GDP assumptions for both our intermediate and severe stress scenarios.

Jerome Powell concedes that the Fed's actions make U.S. recession a "possibility".

**Inflation could persist in 2023.** Companies, especially in energy and commodities sectors, could still face production and transport problems in late 2022 and into 2023, keeping the pressure on supply chains. On energy and commodities, we shocked prices by 40% over our 2023 base case in the severe scenario. If supply problems drag on, inflation could persist in 2023. This scenario also assumes **additional producer price inflation of 300bp**; and half that for the intermediate one.

**Higher interest rates.** Given higher inflation, investors will seek higher interest spreads to keep real returns steady. Consequently, we also **stressed interest spreads by 300bp** over our 2023 base case for the severe scenario and half that for the intermediate one. Note that this 300bp is the average stress across the notional risk category spectrum. It is roughly anchored on the moderately high risk category with the low and moderately low categories subject to lesser stress amounts, and high risk category a greater amount.

**Stress test outcomes are stark.** In the severe scenario, we found that the debt-weighted ratio of corporate loss-makers rises by two-thirds to 17% in 2023, from 10% in the 2022 base case (see table 1-1). The China subsample is the worst performer, at 22% from 12%. Asia-Pacific ex-China is not far behind, at 20% from 12%. Europe fares better, at 14% up three-quarters from 8%.

Table 1-1

## Stress Test: Every Region Will See A Lot More Corporate Loss-Makers In 2023

Loss-makers (% of debt) for corporate sample by region

| Loss-makers (%) | Sample debt $ tril. | Sample count | Average risk tier | Actual 2021 | Baseline, 2022p | Intermediate shock, 2023p | Severe shock, 2023p |
|---|---|---|---|---|---|---|---|
| Global | 37.2 | 20,000 | 4.1 | 7% | 10% | 14% | 17% |
| APAC ex-CN | 8.2 | 9,109 | 4.3 | 9% | 12% | 17% | 20% |
| China | 8.6 | 3,448 | 4.3 | 7% | 12% | 19% | 22% |
| EM-19 | 3.1 | 3,360 | 4.0 | 9% | 11% | 14% | 17% |
| Europe | 8.1 | 3,770 | 4.1 | 6% | 8% | 12% | 14% |
| Latin America | 1.1 | 892 | 4.0 | 10% | 11% | 15% | 18% |
| North America | 10.4 | 2,233 | 3.9 | 5% | 7% | 9% | 11% |

Average risk tier is shown as a numeric equivalent where 1.5 = “low”, 3 = “moderately low”, 4 = “moderately high”, 5.5 = “high”. This calculation is a rough ranking of credit risk that references an entity’s debt-to-EBITDA and ratio of funds from operations to debt. Ratios are debt weighted. p--Projection. APAC ex-CN--Asia-Pacific excluding China. EM-19--19 emerging markets, namely Argentina, Brazil, Chile, Colombia, Egypt, India, Indonesia, Kazakhstan, Malaysia, Mexico, Nigeria, Peru, Philippines, Poland, Saudi Arabia, South Africa, Thailand, Turkey, and Vietnam; we examine China separately due to the vastness of its debt volume. tril.--Trillion. Original data source: S&P Global Market Intelligence. Source: S&P Global Ratings.

# Scenario Assumptions

**Scenario building blocks.** The stagflation scenario was developed by applying the following assumptions:

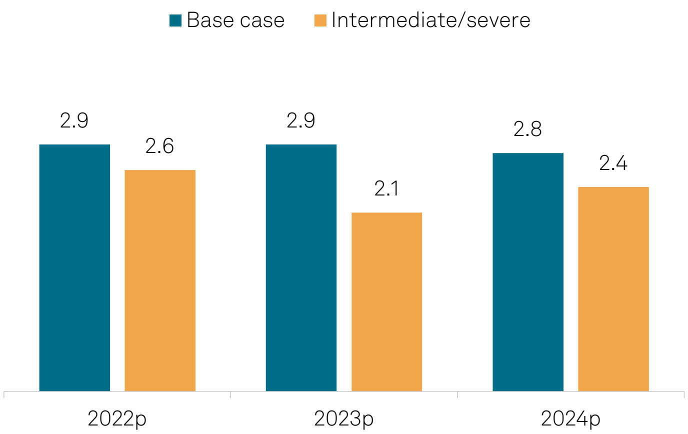
1. **Economic conditions.** First, we assumed a scenario where all three key economic regions of China, eurozone and the U.S. begin to suffer economic slowdowns that exceed our base case. These initial real GDP growth assumptions are shown in charts 1-4a to 1-4d. We see changes in nominal GDP growth from the scenario moving in tandem with corporates' revenues (see chart 1-5).

Initial China dip, eurozone sharp slowdown, and U.S. mild recession.

Chart 1-4a

### Global GDP: Initial Slower Growth

Real GDP growth (%)

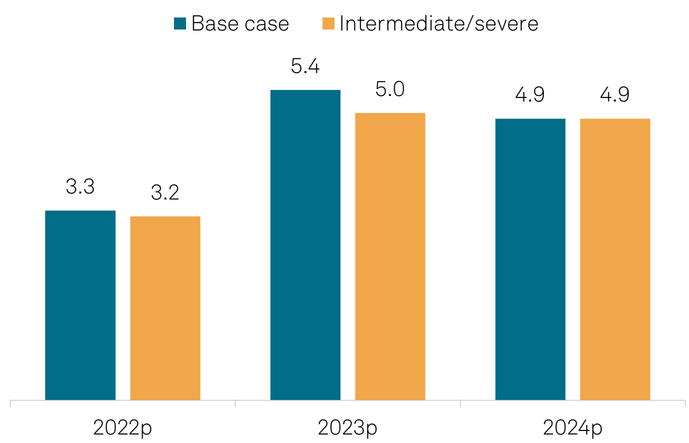



p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

Chart 1-4b

### China GDP: Initial Growth Dip

Real GDP growth (%)

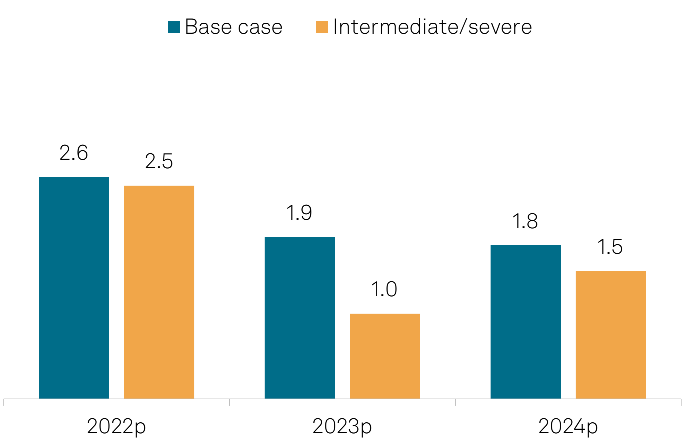



p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

Chart 1-4c

### Eurozone GDP: Initial Sharp Slowdown

Real GDP growth (%)

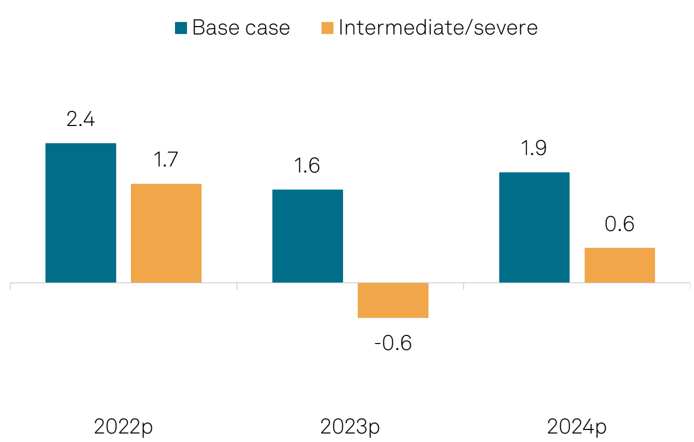



p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

Chart 1-4d

### U.S. GDP: Initial Mild Recession

Real GDP growth (%)

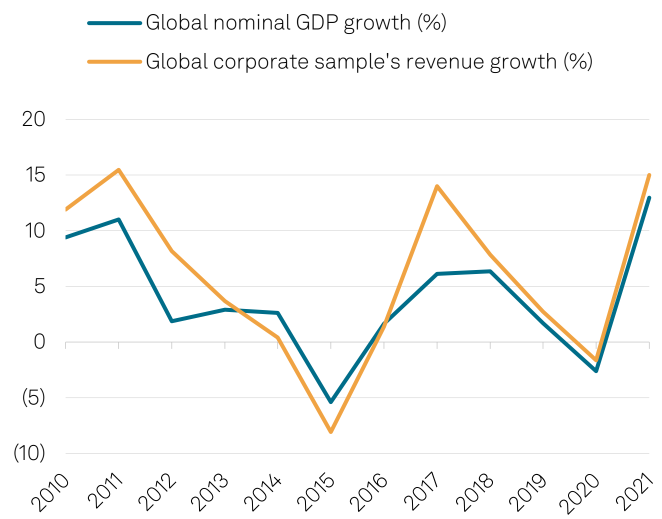



p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

Chart 1-5

### GDP And Revenue Grow In Tandem

Annual growth (%)

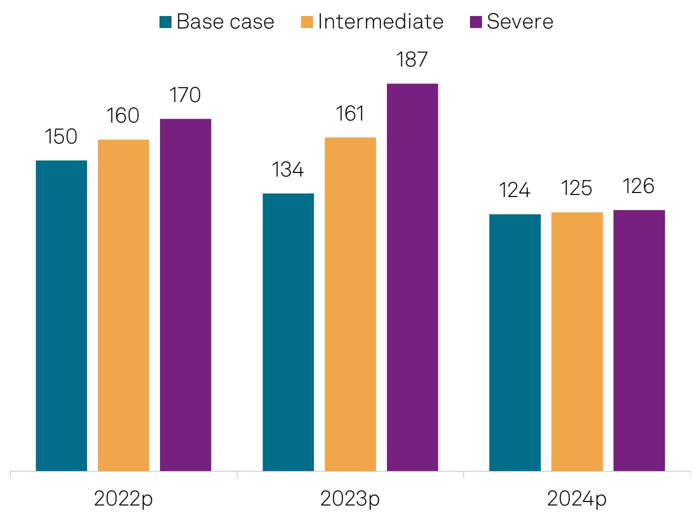



Data source: GDP--World Bank, revenue--sample drawn from S&P Global Market Intelligence.
Source: S&P Global Ratings.

Chart 1-6

### Scenario: Commodity Price Peak In 2023

Price index, 2021 = 100




p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

2. **Energy and commodities shock.** Second, we shock corporates' energy and commodities costs: by 20% over our 2023 base case in the intermediate scenario, and 40% in the severe scenario (see chart 1-6).

3. **General inflation shock.** Third, we stressed the corporates' cost of goods sold (COGS) excluding energy and commodities costs.

   - Intermediate scenario: we stressed by 70 basis points (bp) over the 2022 base case, 150bp over the 2023 base case, and 20bp over 2024's for the three years, respectively (see chart 1-7).
   - Severe scenario: we stressed by 130bp over the 2022 base case, 300bp over 2023's and minus 140bp over the 2024 base case. The latter reflects our view that higher interest rates in 2023 in the severe scenario (see paragraphs 4 and 5 below) will significantly curtail inflation.
   - Corporates' ability to pass higher costs on to customers: we presume a pass-through rate of about 80% across all geographies, which is further adjusted on a sector-by-sector basis based on our subjective view on each industry.

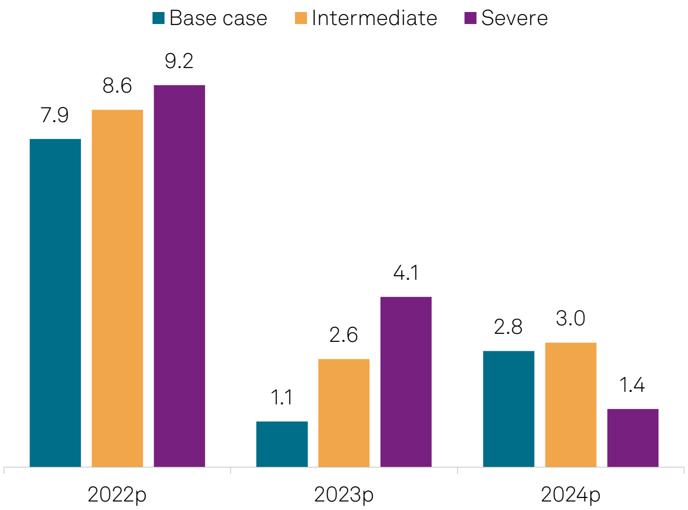
We test for a 300bp rise in cost of goods sold...

**Base interest rates.** Fourth, we factor in incremental base interest rates (akin to central bank policy rates) over 2021 of: 175bp for the 2022 average; 360bp for 2023 average; and 360bp for the 2024 average (see chart 1-8). Put another way, we presume central banks will keep raising policy rates in 2022 and 2023 but pause in 2024 as the momentum of inflation abates.

Chart 1-7

### Scenario: Cost Inflation Highest In 2022

Cost change from prior year (%)

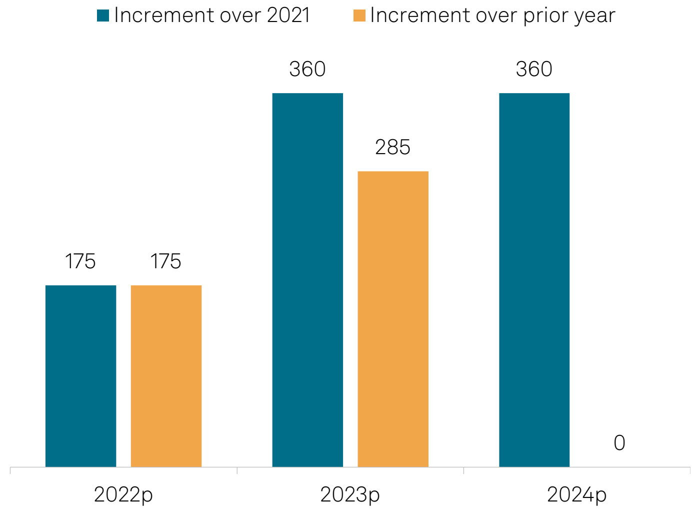



p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

Chart 1-8

### Scenario: Policy Rates Up In 2022-2023

Base interest rate, basis points (bp)




p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

4. **Interest spreads shock.** Fifth, we shocked interest spreads by an average:
   - 100bp in 2022 and 150bp in 2023 for the intermediate scenario;
   - 200bp in 2022 and 300bp in 2023 for the severe one.

...and a 300bp rise in average interest spreads.

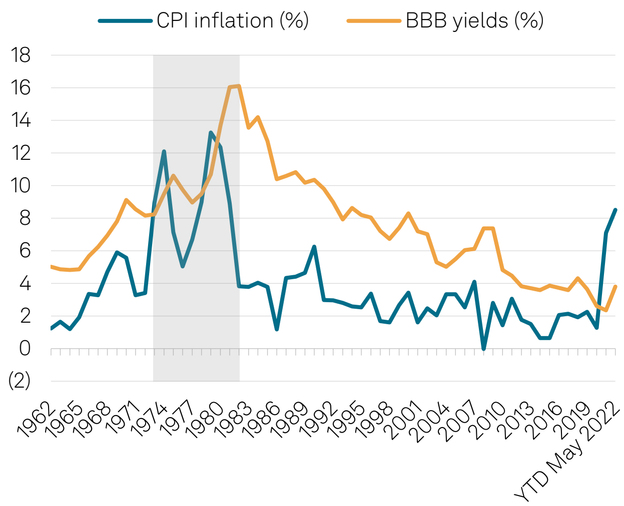
The interest spread shock reflects our expectation that investors will demand higher returns to compensate for higher-than-expected inflation. In our scenarios, interest spreads peak in 2023 whereas inflation peaks in 2022. This aligns with the observation that historically yields seem to lag inflation (see chart 1-9a) with the yields in 2021 and year-to-date 2022 especially slow to adjust (see circled crosses in chart 1-9b).

The scenario spread shock is applied only on floating rate and maturing debt (which presumably will be refinanced) (see chart 1-10 for assumed maturity profile of debt). The spread figures mentioned above are averages with the specific spread shock differing based on the risk category of the corporate (see charts 1-11a to 1-11c for yields by risk category).

Chart 1-9a

### Yields And Inflation Trend Together

U.S. CPI inflation and BBB yields (%), 1962 to 2021

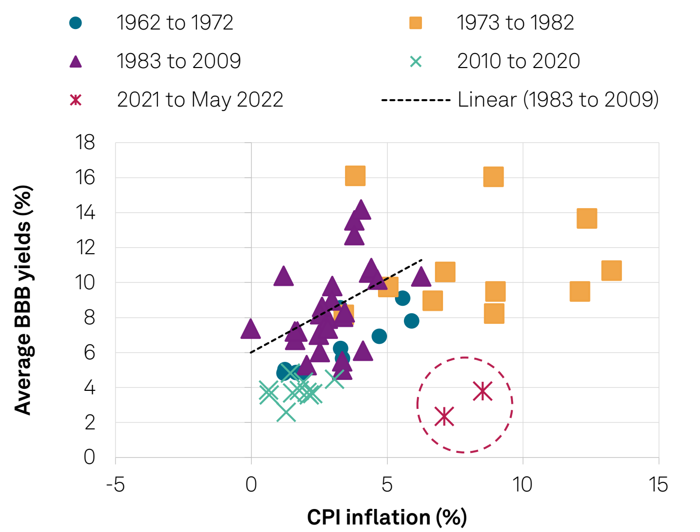



Shaded area denotes the U.S. stagflation period between 1973 and 1982. Data source: Federal Reserve Bank of St. Louis (FRED). Source S&P Global Ratings.

Chart 1-9b

### Yields And Inflation Relationship

U.S. CPI inflation and BBB yields (%), 1962 to 2021

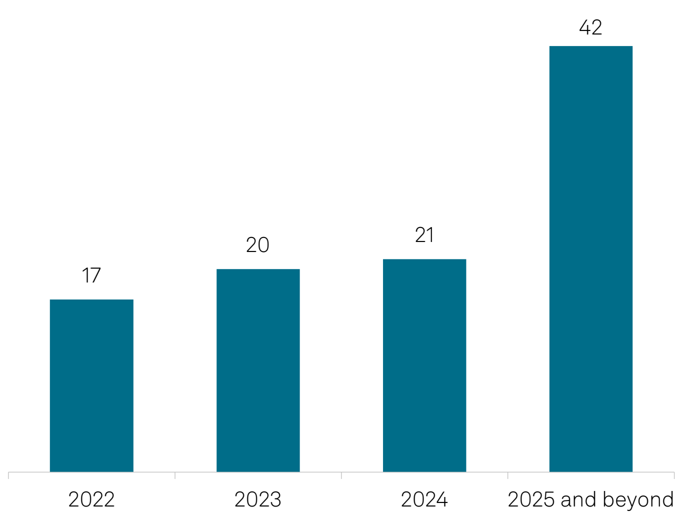



1973 to 1982 is the U.S.'s stagflation period. Data source: Federal Reserve Bank of St. Louis (FRED). Source S&P Global Ratings.

Chart 1-10

### Debt Maturity Profiles Are Well Spread

Assumed global debt maturity profile (%)

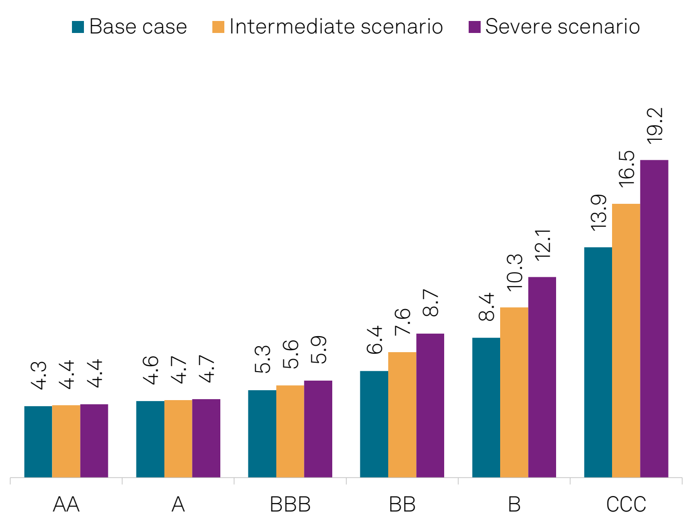



Includes rated bonds, loans, and revolving credit facilities. Source: S&P Global Ratings.

Chart 1-11a

### 2022p Interest Yields

Percent (%)

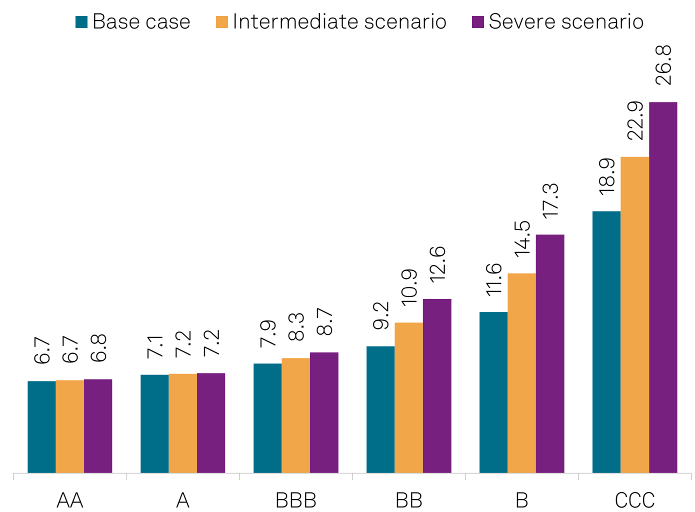



p--Projected. These projections are only for this scenario exercise, not for rating assessments. Source: S&P Global Ratings.

Chart 1-11b

2023p Interest Yields

Percent (%)

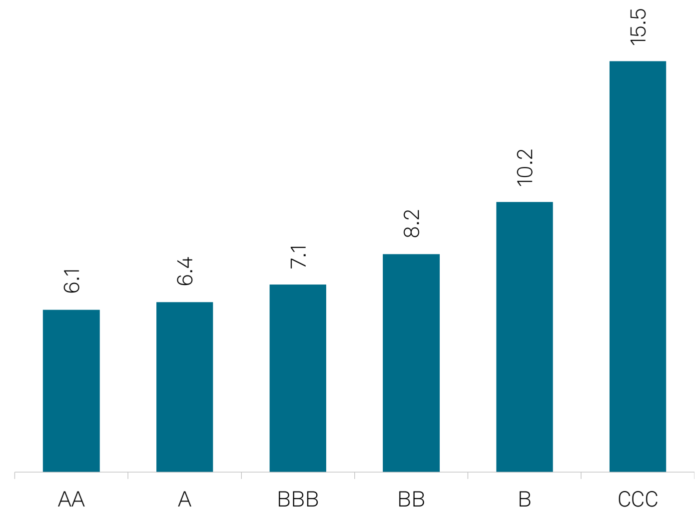



p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

Chart 1-11c

2024p Interest Yields

Percent (%)




p--Projected. These projections are only for this scenario exercise, not for rating assessments.
Source: S&P Global Ratings.

**Stagflation endpoint.** We like to emphasize that the economic downturns described in step 1 above is only the initial economic scenario and not the end economic scenario. Rather, the end scenario can be inferred by the percentage fall in EBITDA resulting from the combined application of the stresses of steps 1 to 5 above. The fall in EBITDA indicates that the GDP hit is worse, resulting in a global recession. In turn, together with the high inflation assumed in steps 2 and 3, this results in a stagflation end-scenario (though not a multi-year situation as occurred in the U.S. over 1973-1982).

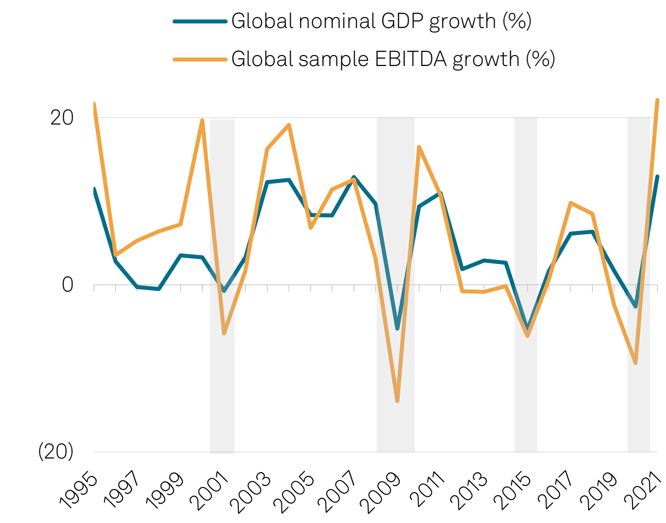
**EBITDA and GDP relationship.** Our "*Recession Risk And Ratings: What Recession Could Mean For European Speculative Grade Nonfinancial Corporates*," article published June 23, 2022 sets out how recessionary conditions may be inferred by the peak-to-trough change in geographic EBITDA. Chart 1-12 indicate some correlation between global corporate EBITDA growth (based on a global corporate sample of 4,158 entities) and global nominal GDP growth with the former ranging from -5% to -15% whenever nominal GDP growth goes below zero.

Nominal GDP and EBITDA growth are correlated.

Chart 1-12

### GDP And EBITDA Growth Trend Together

Nominal GDP and corporate EBITDA growth (%), 1995-2021

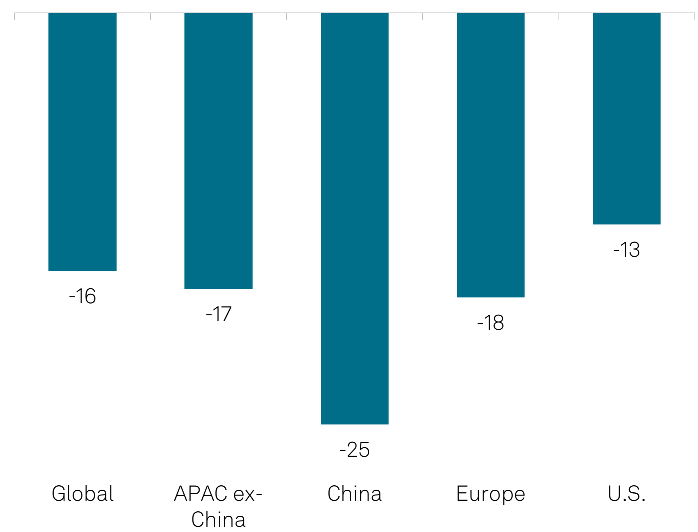



Shaded areas refer to downturn periods. Data source: GDP--International Monetary Fund. Corporate sample--S&P Global Market Intelligence. Source: S&P Global Ratings.

Chart 1-13

### Scenario: Change In Absolute EBITDA, 2021 (Peak) To 2023p Severe (Trough)

Percent (%)




APAC--Asia-Pacific. p--Projected. Source: S&P Global Ratings.

**GFC-like hit to EBITDA.** Chart 1-13 shows the impact on sample EBITDA from our severe scenario. China's ratio is the worst because the subsample has one of the highest risk profiles among geographies (see section below on Scenario Outcomes). As can be seen, the global sample suffers a 16% peak-to-trough drop in EBITDA. This drop is as bad as that of the 2008-2009 Global Financial Crisis (GFC) (see chart 1-12).

Stress outcomes show a GFC-like hit to EBITDA.

## Risk Categorization

**Sampling and risk categorization.** We drew a sample of financials for 20,000 nonfinancial corporates (93% unrated, 74% listed, total debt: $37 trillion) from S&P Global Market Intelligence's CapitalIQ database. For each corporate, we calculate its debt-to EBITDA, and FFO to-debt ratios. After adding in country and industry sector risks, we categorize each corporate according to four risk tiers: low, moderately low, moderately high, and high. (FFO is calculated after deducting net interest expense and tax expense from EBITDA. Debt amount is calculated by deducting 75% of cash equivalents from gross debt).

**Loss-maker category.** This sub-category is a sub-set of the "high" category. The loss-maker ratio is calculated from the average of the negative EBITDA and negative FFO ratios.

**Ratio.** Ratios are debt-weighted. In computing regional and global ratios, country components are reweighted based on total actual country debt (source: Institute of International Finance).

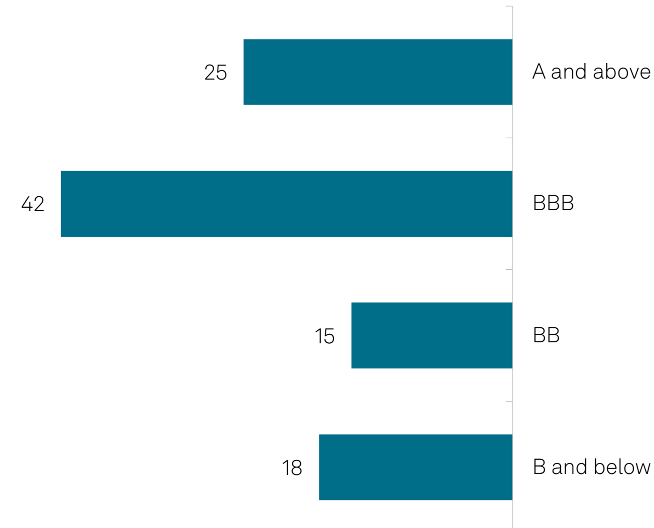
**Mapping of risk categories.** We map the scenario yields for the rating categories of 'A' and above, 'BBB', 'BB', and 'B' and below to our exercise's risk categories of low indebtedness, moderately low, moderately high and high. (See Appendix for more details).

**Sample debt risk worse than our rated portfolio.** On a debt basis (rather than issuer count), the corporate sample (mostly unrated) is generally of lesser credit quality than our rated nonfinancial corporate portfolio. The rated portfolio's implied debt is two-thirds investment-grade (although two-fifths by issuer count) (see chart 1-14a). Although not strictly a like-for-like comparison, the sample's debt risk distribution is more pyramidal with three-quarters moderately high risk or worse (see chart 1-14b).

Chart 1-14a

### Our Rated Corporate Debt Portfolio Is Two-Thirds Investment Grade...

Percent (%)

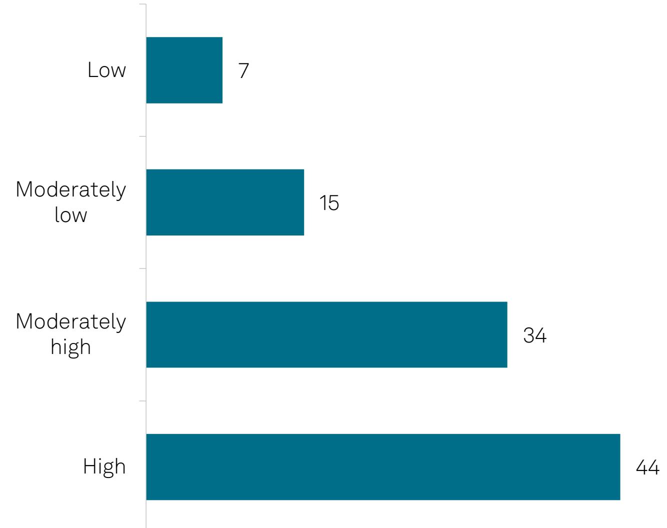



Data as of Jan. 1, 2022. Source: S&P Global Ratings.

Chart 1-14b

### ...Whereas Sample Debt Is Three-Quarters Moderately High Or Worse

Percent (%)




Loss-makers are a subset of the 'high' category. Source: S&P Global Ratings.

# Scenario Outcomes

**Corporate loss-makers double.** Our severe stress test on a global sample of 20,000 corporates (mostly unrated) indicates that loss-makers will more than double to 17% by 2023 from 7% in 2021. In a similar exercise in December 2021, the ratio rose only to 12% by 2023 (see table 1-2). (Our calculations are weighted based on volume of debt rather than number of entities).

Global loss-makers more than double to 17%.

Table 1-2

### Stress Fractures In 2022 Raise The Bar

Global corporate sample loss-maker ratios under different scenarios

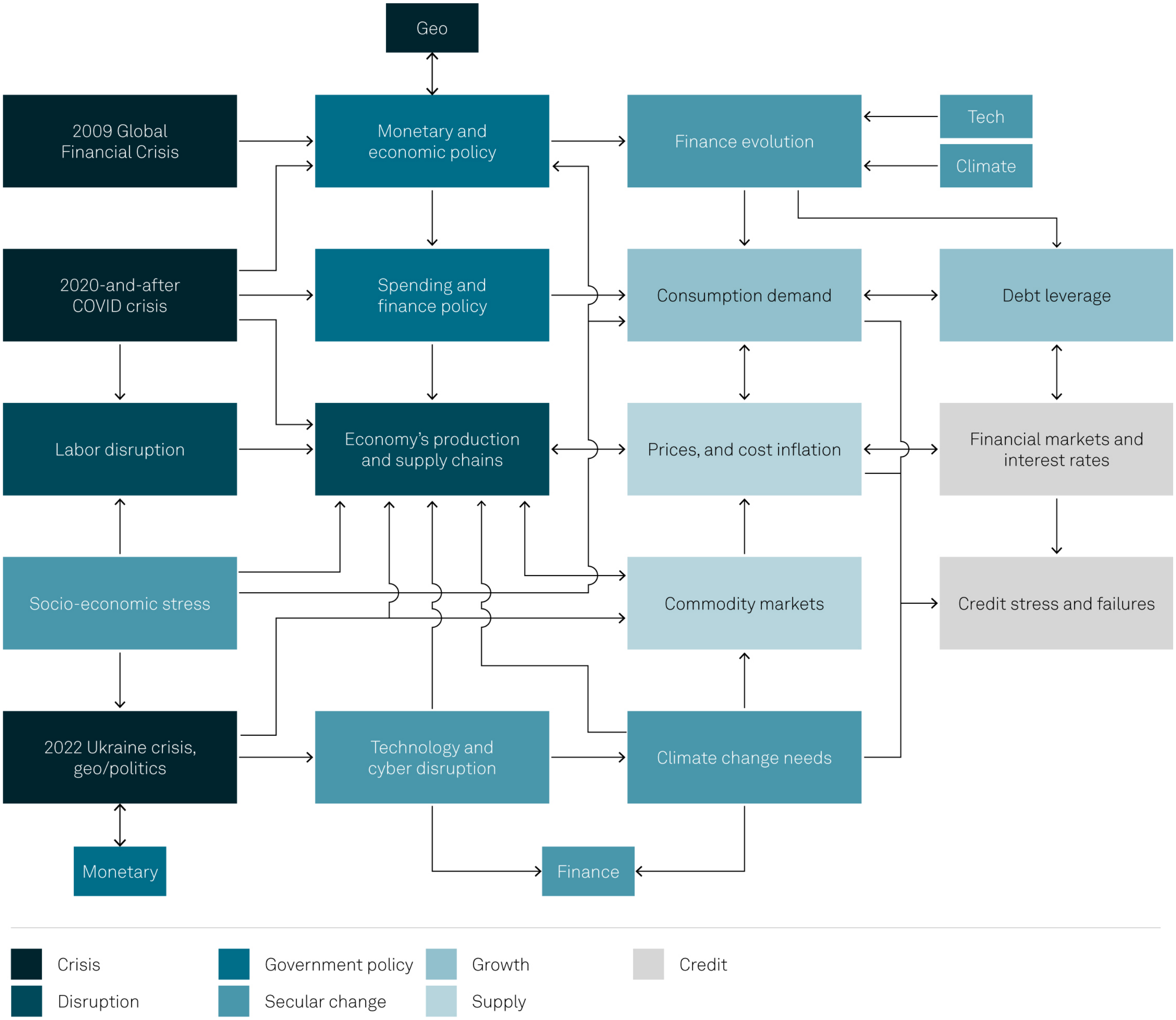
| | | Dec 2021 exercise | | July 2022 exercise | |
|---|---|---|---|---|---|
| **Stress scenario** | **2021** | **2022p** | **2023p** | **2022p** | **2023p** |
| Base case | 7% | 7% | 7% | 10% | 11% |
| Intermediate | 7% | 10% | 10% | 12% | 14% |
| Severe | 7% | 12% | 12% | 14% | 17% |

p--Projection. Loss makers are corporates returning negative EBITDA (earnings before interest, tax and depreciation and amortization expenses) or FFO (funds from operations, which is calculated by deducting net interest expense and tax expense from EBITDA). The specifics of the intermediate stress scenarios of the Dec. 2021 and July 2022 exercises differ but we believe the magnitude of outcomes remains valid. Source: S&P Global Ratings.

Chart 1-15

## Credit Stress Rises In The Aftermath Of COVID And Ukraine Crises

Interplay of credit stress factors




Source: S&P Global Ratings.

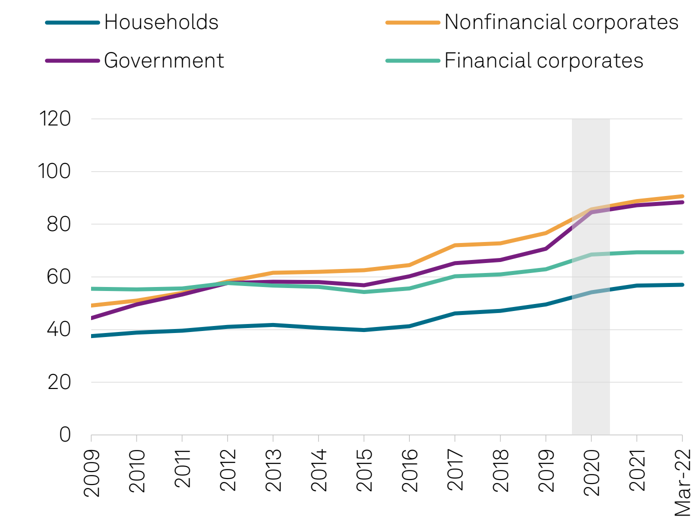
**Underlying weaknesses.** The impact of recent developments is substantive because of two major vulnerabilities. One, the still incomplete economic recovery from the COVID shock. Revenues of some industries have yet to recover to 2019 levels. Many businesses find it hard to recoup higher costs from still-recovering customers. Two, the "lower for longer" decade had encouraged the build-up of debt, compounded by the COVID-induced surge (see charts 1-16a and 1-16b). High debt levels mean that small changes in rates can significantly raise borrowing costs.

Partial recoveries from COVID and higher debt levels will make it harder to absorb shocks.

Chart 1-16a

### COVID Surge Pushes Up Global Corporate And Government Debt

Global debt (US$ tril.), 2009 to March 2022

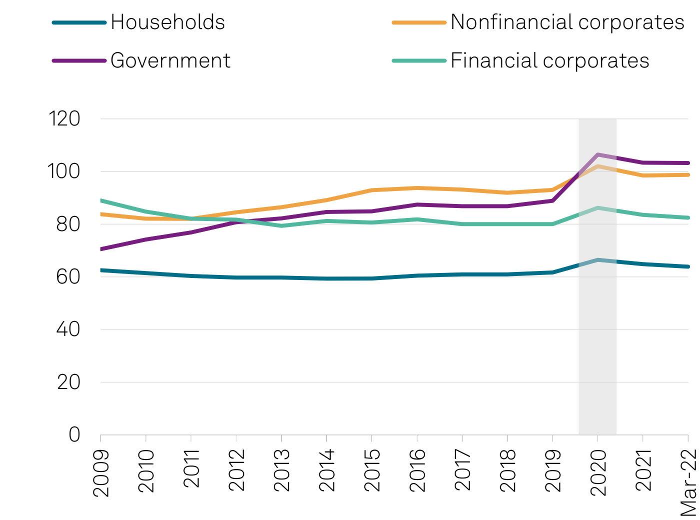



Shaded area refers to the 2020 COVID pandemic breakout. Data source: Institute of International Finance.

Chart 1-16b

### Leverage Levels Have Eased Since 2020 But Still Higher Than In 2019

Global debt-to-GDP (%), 2009 to March 2022



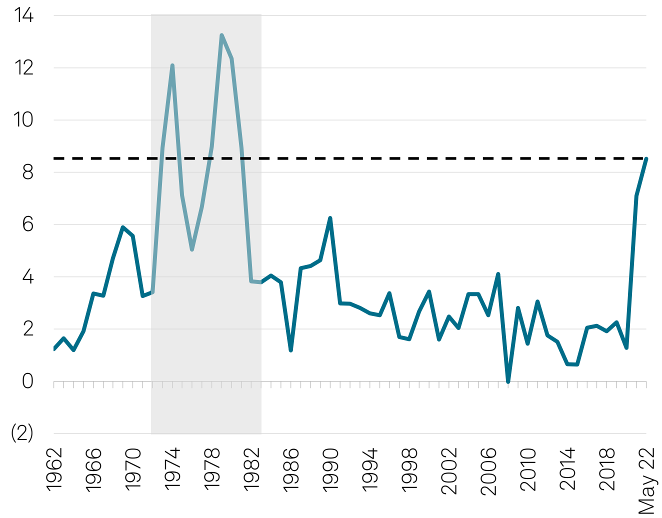

Shaded area refers to the 2020 COVID pandemic breakout. Data source: Institute of International Finance.

**Inflation triggering higher interest rates.** The persistence of inflation surprised central bankers. The U.S. CPI recently hit the mid-point of the U.S. Great Inflation period of 1973 to 1982 (see chart 1-17a). As central banks raise policy rates, investors are demanding much higher interest spreads (see chart 1-17b).

Chart 1-17a

### Inflation Hits The 1970s Mid-Ranges...

U.S. CPI inflation (%), 1962 to May 2022

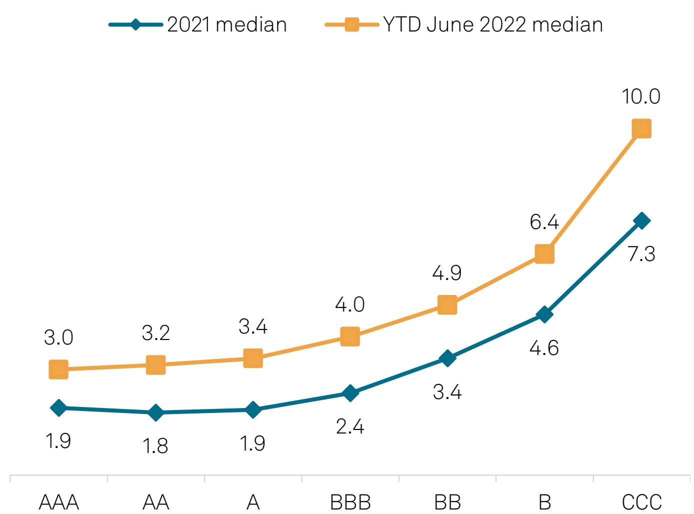



Shaded area is 1973-1982 U.S. stagflation period. Data source: Federal Reserve Bank of St. Louis (FRED). Source: S&P Global Ratings.

Chart 1-17b

### ...Pushing Up Corporate Yields

U.S. corporate yields (%), 2021 vs YTD 2022




Data source: Federal Reserve Bank of St. Louis (FRED). Source: S&P Global Ratings.

**Not all loss-makers will default.** Defaults are tied to borrower liquidity which in turn is driven by duration of the losses, cash reserves, ability to convert assets into cash, debt payments coming due, and willingness of financial and trade creditors to patiently wait for their money or a corporate turnaround.

- In May 2022, we projected that the U.S. trailing-12-month speculative-grade corporate default rate would reach 3% by March 2023, from 1.4% in March 2022.
- In the pessimistic scenario, the default rate could be 6% by March 2023 (see chart 1-18).

Credit Markets Research

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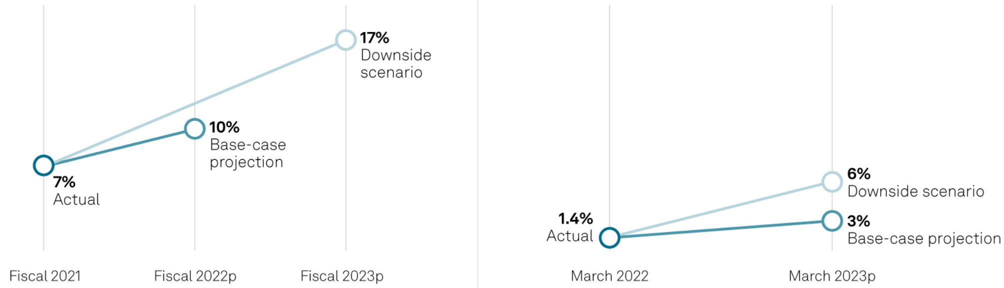
Chart 1-18

## Higher Costs, Lower Growth Could Double Corporate Loss-Makers and Defaults




**Global unrated corporates loss-maker ratios**

We project the ratio of loss-making corporates could rise to 10% in 2022 from 7% in 2021. In a severe stress scenario, this ratio could rise to 17% by 2023.

**U.S. trailing 12-month to March speculative-grade corporate default rates**

In the base-case, defaults rise to 3% by March 2023 because of squeezed margins and slowing growth. In the pessimistic scenario, rising recession odds, interest rates and input costs doubles it to 6%.

p--Projection. The above is only meant to illustrate trends. Loss-maker ratios and default rates are not strictly comparable given that their scope, time periods and scenarios differ. Loss-maker ratios are based on a global sample; default rates on the U.S. speculative-grade corporate pool. The time period for U.S. speculative-grade corporate default rates is trailing 12-months ending March. The loss-maker scenario is based on quantified inflation and interest rate assumptions. Source: S&P Global Ratings.

Table 1-3 contrasts the scenarios of loss-maker ratios at 14% in the intermediate scenario and 17% in the severe scenario by end-fiscal 2023; from the 11% base case ratio. The U.S. trailing-12-month speculative-grade corporate default rates, both actual and projected, are lower because in practice not all loss-makers will default provided they continue to be supported by both financial and trade creditors.

Table 1-3

## Harsher Conditions Will Drive Up Both Loss-Makers and Defaults

Global sample loss-maker ratio versus U.S. speculative-grade default rate

| | Unrated corporate sample loss-maker projection, July 2022 exercise | | U.S. speculative-grade default forecast exercise |
|---|---|---|---|
| **Stress scenario** | **2022p** | **2023p** | **March 2023p** |
| Base | 10% | 11% | 3% |
| Intermediate | 12% | 14% | - |
| Severe | 14% | 17% | - |
| Pessimistic | - | - | 6% |

p--Projection. Speculative-grade default rates refer to trailing-12-month speculative-grade corporate default rate. Source: S&P Global Ratings.

## Risk Distributions

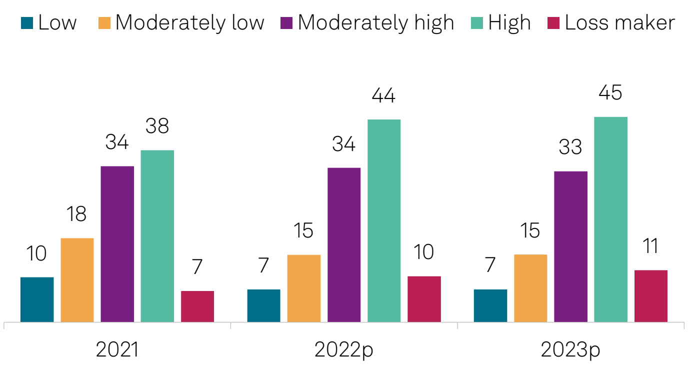
**Distribution already shifting right.** 2022 has proven to be challenging with the risk distribution already shifting right even in our base case---we project loss-makers will rise to 10% by end-2022 from 7% in 2021 (see chart 1-19a). With such a high percentage of borrowers in the "high" risk category (already hitting 44% for the 2022 projected base case), additional shocks easily tip borrowers into the loss-maker category. Consequently, in the intermediate scenario, we project loss-makers rise twofold to 14% by 2023 (see chart 1-19b) from the 7% level in 2021, and in the severe scenario, more than double to 17% (see chart 1-19c).

Risk distribution is already shifting right in 2022.

Chart 1-19a

### Even In Our Base Scenario, Loss-Makers Rise By Over A Half By 2023

Global corporate sample (% of debt)

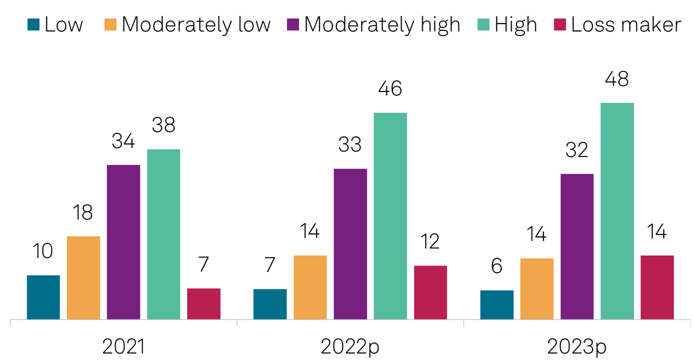



p--Projection. Ratios are debt weighted. Data source: S&P Global Market Intelligence.
Source: S&P Global Ratings.

Chart 1-19b

### In The Intermediate Scenario, Loss-Makers Rise Twofold

Global corporate sample (% of debt)

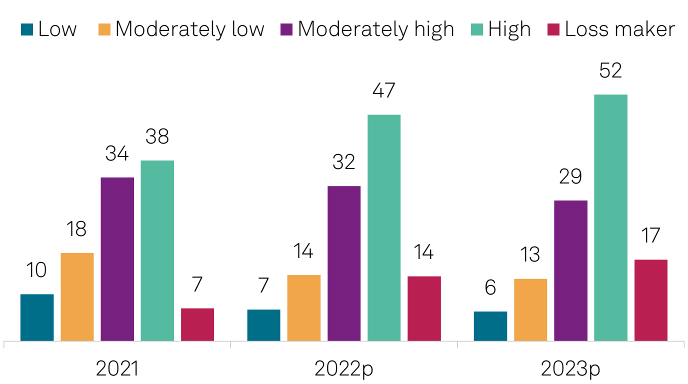



p--Projection. Ratios are debt weighted. Data source: S&P Global Market Intelligence.
Source: S&P Global Ratings.

Chart 1-19c

### In The Severe Scenario, Loss-Makers More Than Double By 2023

Global corporate sample (% of debt)




p--Projection. Ratios are debt weighted. Data source: S&P Global Market Intelligence.
Source: S&P Global Ratings.

## Geography Outcomes

Asia is more sensitive to shocks.

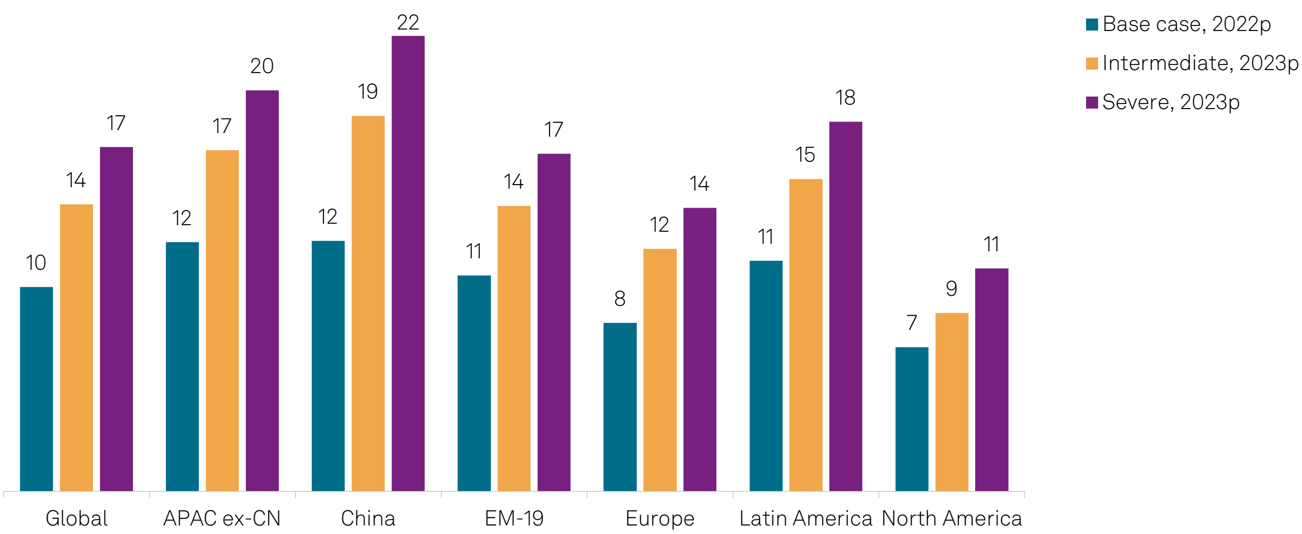
**Among the regions, Asia more vulnerable.** We found the Asia ex-China and China sub-samples more vulnerable to inflation and interest shocks than the Europe and North America subsamples. We project that loss-makers for Asia ex-China and China would both be 12% in the 2022 base case. These rise to 20% and 22% in the severe scenario by 2023 (see chart 1-20 and table 1-4). In contrast, Europe's ratios move up to 14% from 8% and North America's to 11% from 7%. Latin America is somewhere above the middle, with a move to 18% from 11%. The emerging markets' outcome of 17% from 11% is a blend of parts of Asia ex-China, Latin America and Middle-East and Africa (not shown).

For additional discussion on geographic outcomes, see our supplemental article "*If Stagflation Strikes, China Corporates Are Most Vulnerable*," July 12, 2022.

Chart 1-20

### Developed Countries Better Positioned For Inflation And Interest Rate Shocks

Global corporate sample (% of debt)




p--Projection. Ratios are debt weighted. Data source: S&P Global Market Intelligence. Source: S&P Global Ratings.

Table 1-4

### Geography: Compared To Other Regions, Asia-Pacific Corporates Are More Sensitive

Loss-makers (% of debt) for corporate sample by region

| Loss-makers (%) | Sample debt $ tril. | Sample count | Average risk tier | Baseline, 2022p | Intermediate shock, 2023p | Severe shock, 2023p |
|---|---|---|---|---|---|---|
| Global | 37.2 | 20,000 | 4.1 | 10% | 14% | 17% |
| APAC ex-CN | 8.2 | 9,109 | 4.3 | 12% | 17% | 20% |
| China | 8.6 | 3,448 | 4.3 | 12% | 19% | 22% |
| EM-19 | 3.1 | 3,360 | 4.0 | 11% | 14% | 17% |
| Europe | 8.1 | 3,770 | 4.1 | 8% | 12% | 14% |
| Latin America | 1.1 | 892 | 4.0 | 11% | 15% | 18% |
| North America | 10.4 | 2,233 | 3.9 | 7% | 9% | 11% |

Average risk tier is shown as a numeric equivalent where 1.5 = “low”, 3 = “moderately low”, 4 = “moderately high”, 5.5 = “high”. This calculation is a rough ranking of credit risk that references an entity’s debt-to-EBITDA and ratio of funds from operations to debt. Ratios are debt weighted. p--Projection. APAC ex-CN--Asia-Pacific excluding China. EM-19--19 emerging markets, namely Argentina, Brazil, Chile, Colombia, Egypt, India, Indonesia, Kazakhstan, Malaysia, Mexico, Nigeria, Peru, Philippines, Poland, Saudi Arabia, South Africa, Thailand, Turkey, and Vietnam; we examine China separately due to the vastness of its debt volume. tril.--Trillion. Original data source: S&P Global Market Intelligence. Source: S&P Global Ratings.

## Industry Outcomes

**Some industries still struggling.** Globally, consumer discretionary, industrials and real estate sectors have not fully recovered from the COVID years and are thus more vulnerable to resurfacing credit headwinds. In the severe scenario, the loss-maker ratio for consumer discretionary rises to 23%, for industrials to 27%, and for real estate to 24% (see table 1-5 and chart 1-21). The energy sector also hits 14%--while upstream producers benefit from higher market prices, downstream players risk being squeezed.

For additional discussion on geographic outcomes, see our supplemental article “*If Stagflation Strikes, Still-Recovering Corporate Sectors Hit Hardest*,” July 12, 2022.

Consumer discretionary, industrials and real estate could get hit hardest.

Table 1-5

## Sectors: Industrials And Real Estate Suffer Largest Increase In Loss-Makers

Loss-makers (% of debt) for corporate sample by GICS sector

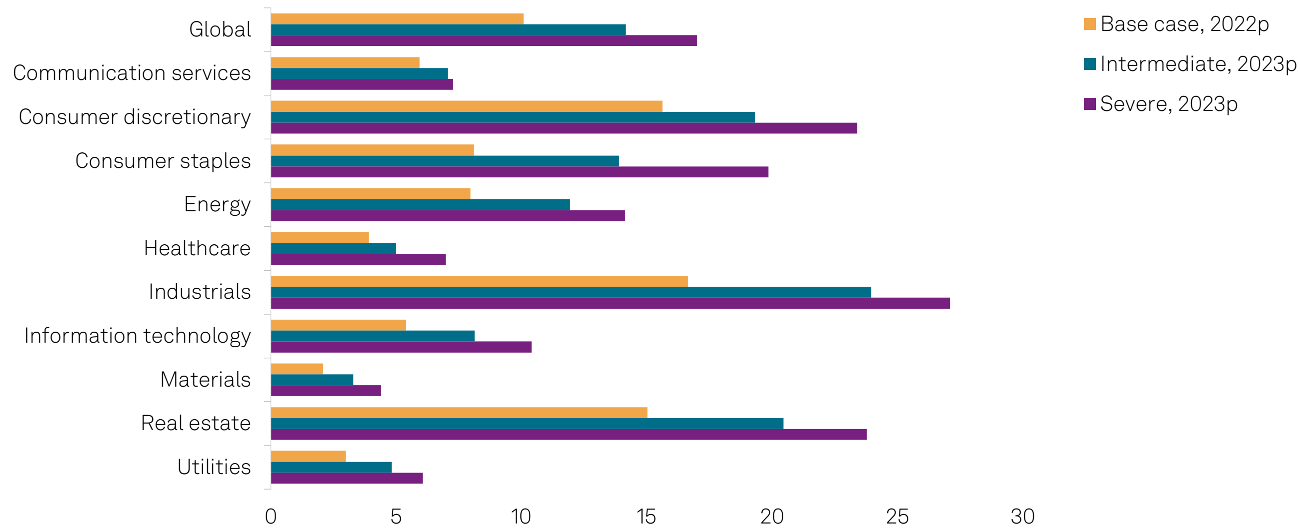
| | | | | Distribution of risk tiers (% of debt), 2022p | | | | | Stress scenario shock: Loss-makers, 2023p | |
|---|---|---|---|---|---|---|---|---|---|---|
| GICS sector | Sample debt | Sample count | Average risk tier | Low (1.5) | Moderately low (3) | Moderately high (4) | High (5.5) | Loss-makers | Intermediate | Severe |
| Global | $37 tril. | 20,000 | 4.1 | 7% | 15% | 34% | 34% | 10% | 14% | 17% |
| Communication services | $3,131 bil. | 756 | 4.1 | 3% | 9% | 61% | 21% | 6% | 7% | 7% |
| Consumer discretionary | $4,430 bil. | 3,629 | 4.4 | 7% | 10% | 22% | 45% | 16% | 19% | 23% |
| Consumer staples | $2,262 bil. | 1,656 | 4.1 | 5% | 11% | 48% | 28% | 8% | 14% | 20% |
| Energy | $2,987 bil. | 687 | 3.6 | 17% | 28% | 29% | 19% | 8% | 12% | 14% |
| Healthcare | $1,888 bil. | 1,130 | 3.8 | 11% | 28% | 35% | 23% | 4% | 5% | 7% |
| Industrials | $8,960 bil. | 4,926 | 4.5 | 4% | 7% | 22% | 50% | 17% | 24% | 27% |
| Information technology | $1,901 bil. | 1,831 | 3.4 | 20% | 38% | 24% | 13% | 5% | 8% | 10% |
| Materials | $2,520 bil. | 2,492 | 3.7 | 12% | 25% | 39% | 22% | 2% | 3% | 4% |
| Real estate | $3,937 bil. | 1,759 | 4.3 | 4% | 14% | 33% | 35% | 15% | 20% | 24% |
| Utilities | $5,190 bil. | 1,134 | 4.1 | 5% | 14% | 51% | 27% | 3% | 5% | 6% |

GICS = Global Industry Classification Standard (GICS®) was developed by S&P Dow Jones Indices. Average risk tier is shown as a numeric equivalent where 1.5 = "low", 3 = "moderately low", 4 = "moderately high", 5.5 = "high". This calculation is a rough ranking of credit risk that references an entity's debt-to-EBITDA and ratio of funds from operations to debt. Ratios are debt weighted. The loss-making ratio can sometimes exceed the ratio of the highly-indebted risk tier, and thus the risk distribution may not sum up to 1 in all cases. p--Projection. bil.--Billion. tril.--Trillion. Source: S&P Global Market Intelligence, S&P Global Ratings.

Chart 1-21

## Inflation And Interest Rate Shocks Will Especially Hit Ill-Recovered Industries

Indebtedness risk distribution (% of debt)




p--Projection. Ratios are debt weighted. Data source: S&P Global Market Intelligence. Source: S&P Global Ratings.

# Related Research

- Global Debt Leverage: If Stagflation Strikes, China Corporates Are Most Vulnerable, July 12, 2022
- Global Debt Leverage: If Stagflation Strikes, Still-Recovering Corporate Sectors Hit Hardest, July 12, 2022
- Global Credit Conditions: Resurfacing Credit Headwinds, June 30, 2022
- White Paper: Introducing Our Credit Cycle Indicator, June 27, 2022
- Recession Risk And Ratings: What Recession Could Mean For European Speculative Grade Nonfinancial Corporates, June 23, 2022
- Take A Hike 2022: Which Sovereigns Are Best And Worst Placed To Handle A Rise In Interest Rates, June 22, 2022
- APAC Corporates: Inflation, Rate Strains Set In, June 21, 2022
- Searching For Stress Fractures: Evaluating The Impact Of Interest Rate And EBITDA Stresses On U.S. Speculative-Grade Corporates, May 25, 2022
- Default, Transition, and Recovery: The U.S. Speculative-Grade Corporate Default Rate Could Reach 3% By 2023 As Risks Continue To Increase, May 19, 2022
- China's COVID Policy To Further Weigh On Economy, Credit, May 16, 2022
- Global Debt Leverage: How A 300bp Rise In Inflation And Interest Rates Could Hit Borrowers, Dec. 7, 2021
- Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making, June 22, 2021

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# Appendix: Data And Approach

This appendix discusses the assumptions, data sources, and approach adopted in the article.

## Corporate financials data source and sample

We drew our global sample of nonfinancial corporate financial data from S&P Global Market Intelligence's Capital IQ database. Financials are for fiscal year 2021.

The sample comprises 20,000 corporates, of which 93% are unrated and 74% are listed. The sample total debt of US$37 trillion is equivalent to 41% of estimated global corporate debt at end-December 2021 (as reported by the Institute of International Finance).

## Caveats

The data have a statistical bias toward nonfinancial corporates that are listed and had reported their latest financials at the date of sample extraction. Consequently, some industry sectors or geographies may be over or underrepresented, on a debt-weighted basis, in the sample compared with the actual global population.

As this exercise in in US$ equivalent, it does not account for foreign exchange rate changes, which may benefit entities whose debt is largely in domestic currency.

## Sample industry coverage

The global sample contains 74 industry sectors: aerospace and defense; air freight and logistics; airlines; aluminum; auto components; automobiles; building products; coal and consumable fuels; commercial and professional services; commodity chemicals; construction and engineering; construction materials; copper; distributors; diversified chemicals; diversified consumer services; diversified metals and mining; diversified real estate activities; diversified REITs; electric utilities; electrical equipment; fertilizers and agricultural chemicals; food and staples retailing; food, beverage and tobacco; gas utilities, gold; health care equipment and services; health care REITs; hotel and resort REITs; hotels, restaurants and leisure; household and personal products; household durables; independent power and renewable electricity producers; industrial conglomerates; industrial gases; industrial REITs; integrated oil and gas; internet and direct marketing retail; leisure products; machinery; marine; media and entertainment; metal and glass containers; multiline retail; multi-utilities; office REITs; oil and gas drilling; oil and gas equipment and services; oil and gas exploration and production, oil and gas refining and marketing; oil and gas storage and transportation; paper and forest products; paper packaging; pharmaceuticals, biotechnology and life sciences; precious metals and minerals; real estate development; real estate operating companies; real estate services; residential REITs; retail REITs; road and rail; semiconductors and semiconductor equipment; silver; software and services; specialized REITs; specialty chemicals; specialty retail; steel; technology hardware and equipment; telecommunication services; textiles, apparel and luxury goods; trading companies and distributors; transportation infrastructure; water utilities.

The engineering and construction sector includes commercial construction and engineering, construction support services, heavy construction, prefabricated buildings and components and specialty contract work subsectors.

## Sample geographic coverage

The global corporate sample covers 61 geographies, which represent over 95% of world GDP:

- **Asia-Pacific:** Australia (AU), mainland China (CN), Hong Kong (HK), India (IN), Indonesia (ID), Japan (JP), Kazakhstan (KZ), Korea (KR), Malaysia (MY), New Zealand (NZ), Pakistan (PK), Philippines (PH), Singapore (SG), Taiwan (TW), Thailand (TH), Vietnam (VN).
- **Europe:** Austria (AT), Belgium (BE), Cyprus (CY), Czech Republic (CH), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Hungary (HU), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH), Turkey (TR), Ukraine (UA), United Kingdom (UK).
- **Latin America:** Argentina (AR), Brazil (BR), Chile (CL), Colombia (CO), Mexico (MX), Peru (PE).
- **Middle-East, Africa:** Egypt (EG), Ghana (GH), Israel (IL), Kenya (KE), Nigeria (NG), Saudi Arabia (SA), South Africa (ZA), United Arab Emirates (AE).
- **North America:** Canada (CA), United States of America (US).

## Growth assumptions

#### Debt growth projections

We applied corporate debt growth rates estimated by our analytical teams for 2022-2024.

#### Revenue growth projections

For each corporate, we project revenue growth for 2022-2024 using a 1-to-1 mapping with nominal GDP growth across geographies.

## Notional credit risk tiers

For this exercise, we determined notional credit risk tiers for each corporate in the sample. In this respect, our evaluation of the country, industry, and financial risks of the corporate sample is partially, but incompletely, borrowed from our Corporate Ratings methodology (see "Criteria/ Corporates/ General/ Corporate Methodology," Nov. 19, 2013). It is important to note that information limitations do not permit full application of such methodology.

We categorized the corporates into four notional credit risk tiers--"low indebtedness", "moderately low indebtedness", "moderately high indebtedness" and "high indebtedness" as a proxy for credit risk. The sub-tier of "loss-makers" (entities returning negative EBITDA or negative FFO) is extracted from the "high indebtedness" tier.

The distribution of notional credit risk tiers by geography and sector presented in this article are all debt weighted. In addition, the distribution by region (which includes multiple geographies) is further reweighted according to each geography's total corporate debt amount reported by International Institute of Finance.

## Key ratios and thresholds

In this exercise, we assess financial risk based on the following ratios: debt-to-EBITDA and FFO-to-debt.

- EBITDA is earnings before interest, tax and depreciation and amortization expenses.
- FFO is funds from operations, which is calculated by deducting net interest expense and tax expense from EBITDA.
- Debt here is adjusted debt, for which we deduct 75% of cash equivalents from gross debt.

### All sectors except for real estate and utilities

| Tier | FFO to debt (%) | Debt to EBITDA (x) |
|---|---|---|
| Low indebtedness | Greater than 45 | Less than 2 |
| Moderately low indebtedness | 30-45 | 2-3 |
| Moderately high indebtedness | 20-30 | 3-4 |
| High indebtedness | Less than 20 | Greater than 4 |

### Real estate

| Tier | FFO to debt (%) | Debt to EBITDA (x) |
|---|---|---|
| Low indebtedness | Greater than 15 | Less than 4.5 |
| Moderately low indebtedness | >9-15 | >4.5-7.5 |
| Moderately high indebtedness | >7-9 | >7.5-9.5 |
| High indebtedness | Less than 7 | Greater than 9.5 |

### Utilities

| Tier | FFO to debt (%) | Debt to EBITDA (x) |
|---|---|---|
| Low indebtedness | Greater than 23 | Less than 3 |
| Moderately low indebtedness | 13-23 | 3-4 |
| Moderately high indebtedness | 9-13 | 4-5 |
| High indebtedness | Less than 9 | Greater than 5 |

## Stress scenarios

We shock the sample financials for rises in input cost-inflation and interest rates (on floating rate and refinancing debt) for 2022 to 2024.

Our framework attempts to test the extent of the generalized presumption that input cost inflation and higher interest yields are detrimental to corporate credit quality. Essentially, this study considers the effects of such shocks on the financial risk profiles of corporates, taking account of their presumed debt-maturity profiles.

**Scenario trigger**

The slowdown in growth among the major economies of the U.S., eurozone, and China is our scenario trigger, cascading into a sequence of repercussions on revenue, prices and interest rates. The growth slowdown assumptions are linked to S&P Global Ratings' June 2022 macroeconomic forecasts (see tables below) using the Global Link Model (GLM) to produce a reasonable set of consistent downside projections for the U.S., eurozone, and China over the period 2022-2024. Based on those, we further apply an intermediate scenario and a severe scenario related to energy and commodities prices, general inflation (particularly producer price index [PPI]), and interest rates, on company financials as detailed below. All told, our scenario endpoint implies stagflation conditions.

**Input inflation shock**

We use PPI as a proxy for input cost.

We assume an input cost pass-through rate of about 80% to arrive at net inflation at both geography- and sector-level, and any increase in cost of goods sold (COGS, inclusive of labor cost) absorbed by each corporate is the simple average of the two. In addition, sector-level inflation captures both the change in energy/commodities prices and general inflation, taking into account the cost breakdown by sector.

As aforementioned, each corporate's revenue growth is assumed to move in tandem with nominal GDP growth. For a few upstream sectors related to energy and commodities, we assume an additional increase in revenue as they tend to benefit from higher energy/commodities prices.

For the intermediate and severe scenarios, respectively, we reference the corresponding energy/commodities prices, PPI, and nominal GDP growth for 2022-2024 in the calculations.

**Interest rate shock**

Our severe interest rate shock in 2023 entails an upward shift of the interest spread curve, averaging 300bp across credit risk tiers on top of the base case, applying larger increments towards the riskier categories. For the intermediate scenario, our interest spread shock averages 150bp.

The shock is applied on floating rate and maturing debt. We assume that the additional risk premium demanded by investors for a given credit risk tier is the same regardless of industry sector, geography, or currency of debt.

| Tier | Incremental spreads vs. 2021 median levels Intermediate scenario | | | Incremental spreads vs. 2021 median levels Severe scenario | | |
|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2022 | 2023 | 2024 |
| Low indebtedness | 82 to 105 | 134 to 171 | 72 to 93 | 89 to 112 | 140 to 177 | 72 to 93 |
| Moderately low indebtedness | 147 | 238 | 111 | 176 | 278 | 111 |
| Moderately high indebtedness | 246 | 394 | 126 | 358 | 566 | 126 |
| High indebtedness | 386 to 738 | 620 to 1189 | 192 to 449 | 569 to 1001 | 900 to 1583 | 192 to 449 |